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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/684,508	10/15/2003	Livia Polanyi	CQ10224	6736
23493	7590	07/09/2008		
SUGHRUE MION, PLLC 2100 Pennsylvania Avenue, N.W. Washington, DC 20037			EXAMINER COLUCCI, MICHAEL C	
			ART UNIT 2626	PAPER NUMBER
			NOTIFICATION DATE 07/09/2008	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

USPTO@sughrue.com
USPatDocketing@sughrue.com

Office Action Summary

Application No.

10/684,508

Applicant(s)

POLANYI ET AL.

Examiner

MICHAEL C. COLUCCI

Art Unit

2626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 and 34-37 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2-9, 12-16, 18-21, 34, 35 and 37 is/are allowed.
- 6) ☒ Claim(s) 1, 10, 11, 22, 23, and 36 is/are rejected.
- 7) ☒ Claim(s) 17 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/888)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Objections

1. Claim 17 objected to because of the following informalities: Claim 17 appears to contain only a portion of the entire claim, wherein "currently amended" visibly obstructs the remaining portion. Appropriate correction is required.

Allowable Subject Matter

2. Claims 2-9, 12-16, 18-21, 34, 35, and 37 are allowed.

NOTE: Examiner acknowledges cancellation of claims 24-33, 38, and 39.

NOTE: Examiner acknowledges correction of the specification.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 22 and 23 rejected under 35 U.S.C. 101 because:

The claimed invention is directed to non-statutory subject matter.

Claim 22 discloses a "carrier wave encoded to transmit a control program, useable to program a computer to determine hybrid text summary, to a device for executing the program". A carrier wave and computer program does not fall under one of the statutory categories under 35 USC 101 as patent eligible subject matter, where computer program, computer program product, or carrier wave does not define any

structural and functional interrelationships between the computer program and other claimed elements of a computer which permit the computer program's functionality to be realized.

Further, claim 23 discloses a "Computer readable storage medium comprising: computer readable program code embodied on the computer readable storage medium, the computer readable program code usable to program a computer", wherein a "computer program" and "computer readable storage medium" with no description or clear support of a computer program product or medium positively disclosed in the specification. Therefore, with no disclosure of a computer product within the specification, a computer program product can be interpreted as a computer program, which does not fall under one of the statutory categories under 35 USC 101 as patent eligible subject matter, where computer program or computer program product does not define any structural and functional interrelationships between the computer program and other claimed elements of a computer which permit the computer program's functionality to be realized.

Response to Arguments

4. Applicant's arguments, see Remarks, filed 4/22/2008, with respect to the rejection(s) of claim(s) 2-9, 12-21, 34, 35, and 37 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn.

However, upon further consideration, a new ground(s) of rejection is made in view of Michalewicz et al. US 20020065857 A1 (hereinafter Michalewicz).

The withdrawn reference of Copperman et al. US 20040024739 A1 (hereinafter Cooperman) teaches structured and unstructured data transformations of text that are nearly identical to the concept of perCol.ation. However, the invention itself teaches methods in relation to organization and retrieval of documents rather than a summarization as taught within independent claim 1. Therefore, it appears that the proposed amendments and arguments overcome Cooperman and the reference will be withdrawn as a result.

Argument 1 (page 19 paragraph 2):

- "The amended independent claim 1 recites "A method of determining a hybrid text summary comprising the steps of: determining discourse constituents for a text; determining a structural representation of discourse for the text; determining relevance scores for the discourse constituents based on at least one non-structural measure of relevance; perCol.ating the relevance scores based on the structural representation of discourse; and determining a hybrid text summary." (Emphasis added.)"

Response to argument 1:

Examiner takes the position that Marcu et al U.S. PGPUB 20020046018 (herein after Marcu) fails to teach the use of relevance scores and the determination of a hybrid text summary relevant to structured data, particularly text. However, Corston et al. US 6901399 B1 (hereinafter Corston) teaches natural language

processing, wherein a structural representation of a document is present.

Corston teaches that even if the document does not have a title which contains the keyword, sentences in the document can be analyzed to determine the meta structure of the document. For example, the subjects of sentences, particularly subjects of sentences whose main verb is "be", tend to be the theme or topic of that sentence. Precision can be increased, even for keyword queries, by preferentially matching the keyword queries against documents containing sentences about that keyword (Corston Col.. 33 line 65 – Col.. 34 line 9).

Corston teaches that a meta structure of the document is indicative of a general subject matter of the document, wherein obtaining the set of abstract logical forms indicative of a meta structure of the document comprises: obtaining the set of abstract logical forms based on formatting information corresponding to the document. Additionally, obtaining the set of abstract logical forms indicative of a meta structure of the document comprises: obtaining the set of abstract logical forms based on topics of sentences in the document. Further, Corston teaches that obtaining the set of abstract logical forms indicative of a meta structure of the document comprises: obtaining the set of abstract logical forms based on subjects of sentences in the document (Corston Col.. 45 lines 37-55).

Additionally, Corston teaches that it is well known to use a relevancy score, wherein a user input query in such techniques is typically presented as either an

explicit user generated query, or an implicit query, such as when a user requests documents which are similar to a set of existing documents. Typical information retrieval systems search documents in the larger data store at either a single word level, or at a term level. Each of the documents is assigned a relevancy (or similarity) score, and the information retrieval system presents a certain subset of the documents searched to the user, typically that subset which has a relevancy score which exceeds a given threshold (Corston Col.. 1 line 59 – Col.. 2 line 2).

Argument 2 (page 19 paragraph 2):

"The amended claim 10 depends from claim 1 and recites The method of claim 1, wherein perCol.ation of relevance scores comprises the steps of: determining important discourse constituents, the relevance scores of the important discourse constituents exceeding an importance threshold value; determining unresolved anaphors of the important discourse constituents; determining potential resolving discourse constituents containing potential antecedent referent of the unresolved anaphors; perCol.ating the relevance score of the important discourse constituents through the potential resolving discourse constituents; and determining a modified span of the important discourse constituents based on the relevance score (Emphasis added.)"

Response to argument 2:

Examiner takes the position that Marcu in view of Corston fails to teach determining unresolved anaphors, wherein an anaphoric expression, its antecedent is searched for and the anaphoric expression is replaced with the antecedent or a portion containing the antecedent is included in a summary so that the summary can be easily understood. The antecedent of the anaphoric expression can be identified by a method referred to as a centering method. This method makes a list of centers that comprises probable elements (centers) of a sentence to be antecedents of anaphoric expressions in the subsequent sentences. The elements probability to be an antecedent is calculated mainly by its syntactic role in a sentence, such as subject, direct object, etc. Then, the method resolves an anaphoric expression by selecting the most probable element from the list with the restriction of agreement of number, gender, etc. (Nakao Col. 4 line 12-29).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 11, 22, 23, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marcu et al. U.S. PGPUB 20020046018 (herein after Marcu) in view of Corston et al. US 6901399 B1 (hereinafter Corston).

Re claims 1, 11, 22, 23, and 36, Marcu teaches a method of determining a hybrid text summary comprising the steps of:

- determining discourse constituents for a text ([0010]);
- determining a structural representation of discourse for the text ([0003]);
- determining relevance scores for the discourse constituents based on at least one non- structural measure of relevance ([0003]);
- determining a hybrid text summary ([0003])

However, Marcu fails to teach determining relevance scores and percolating the relevance scores

Corston teaches that it is well know to use a relevancy score, wherein a user input query in such techniques is typically presented as either an explicit user generated query, or an implicit query, such as when a user requests documents which are similar to a set of existing documents. Typical information retrieval systems search documents in the larger data store at either a single word level, or at a term level. Each of the documents is assigned a relevancy (or similarity) score, and the information retrieval system presents a certain subset of the documents searched to the user, typically that subset which has a relevancy score which exceeds a given threshold (Corston Col.. 1 line 59 – Col.. 2 line 2).

based on the structural representation of discourse

Corston teaches that even if the document does not have a title which contains the keyword, sentences in the document can be analyzed to determine the meta structure of the document. For example, the subjects of sentences, particularly subjects of sentences whose main verb is "be", tend to be the theme or topic of that sentence. Precision can be increased, even for keyword queries, by preferentially matching the keyword queries against documents containing sentences about that keyword (Corston Col.. 33 line 65 – Col.. 34 line 9).

Corston teaches that a meta structure of the document is indicative of a general subject matter of the document, wherein obtaining the set of abstract logical forms indicative of a meta structure of the document comprises: obtaining the set of abstract logical forms based on formatting information corresponding to the document. Additionall, obtaining the set of abstract logical forms indicative of a meta structure of the document comprises: obtaining the set of abstract logical forms based on topics of sentences in the document. Further, Corston teaches that obtaining the set of abstract logical forms indicative of a meta structure of the document comprises: obtaining the set of abstract logical forms based on subjects of sentences in the document (Corston Col.. 45 lines 37-55).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention determining a hybrid text summary based on constituents with relevance scores having a threshold score, where perCol.ation is performed based on a relevance score. PerCol.ating or passing relevant scores would allow for efficient

clustering, where only a specific range of structured data that abides by relevant criteria will remain.

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Marcu et al U.S. PGPUB 20020046018 (herein after Marcu) in view of Corston et al. US 6901399 B1 (hereinafter Corston) and further in view of Nakao US 6205456 B1 (hereinafter Nakao).

Re claim 10, Marcu fails to teach the method of claim 1, wherein perCol.ation of relevance scores comprises the steps of:

Corston teaches perCol.ating relevance score of important discourse constituents exceeding an importance threshold value (Corston Col.. 1 line 59 – Col.. 2 line 2).

Corston teaches that it is well know to use a relevancy score, wherein a user input query in such techniques is typically presented as either an explicit user generated query, or an implicit query, such as when a user requests documents which are similar to a set of existing documents. Typical information retrieval systems search documents in the larger data store at either a single word level, or at a term level. Each of the documents is assigned a relevancy (or similarity) score, and the information retrieval system presents a certain subset of the documents searched to the user, typically that subset which has a relevancy score which exceeds a given threshold (Corston Col.. 1 line 59 – Col.. 2 line 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention determining a hybrid text based on constituents with perCol.ating relevance scores having a threshold score, where threshold comparison is performed based on a relevance score. PerCol.ating relevance scores relevant to a threshold score would allow for efficient clustering, where only a specific range of data that abides by a relevance probability will remain.

However, Marcu in view of Corston fails to teach determining important discourse constituents;

determining unresolved anaphors of the important discourse constituents (Nakao Col. 4 line 12-29);

determining potential resolving discourse constituents containing potential antecedent referent of the unresolved anaphors (Nakao Col. 4 line 12-29);

through the reduced span of potential resolving discourse constituents (Nakao Col. 4 line 12-29);

determining a modified span of the important discourse constituents based on the relevance score (Nakao Col. 4 line 12-29).

Nakao teaches for an anaphoric expression, its antecedent is searched for and the anaphoric expression is replaced with the antecedent or a portion containing the antecedent is included in a summary so that the summary can be easily understood. The antecedent of the anaphoric expression can be identified by a method referred to as a centering method. This method makes a list of centers that comprises probable

elements (centers) of a sentence to be antecedents of anaphoric expressions in the subsequent sentences. The elements probability to be an antecedent is calculated mainly by its syntactic role in a sentence, such as subject, direct object, etc. Then, the method resolves an anaphoric expression by selecting the most probable element from the list with the restriction of agreement of number, gender, etc.

NOTE: For purposes of prior art, a reduced span is construed to be both functionally equivalent and equally effective as a resolved set with the most probable elements present.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention determining portions of text containing anaphors, where an antecedent referent can be substituted for the anaphor, and removing the antecedent referent relevant to a relevancy threshold. Using an anaphor to replace an antecedent referent would allow for a preservation of memory, where more than one item can refer to a single item (i.e. anaphoric relationship). Additionally, using syntactic analysis with antecedent and anaphoric substitutions would allow for a minimized set of data that would be the most probable with respect to the discourse/text by reduction of a set of candidate data. Additionally, percolating scores of various elements relevant to probability and antecedent basis would allow for a further reduced set that is minimized for both anaphor and original data from the discourse.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 7139752 B2, US 20040243645 A1, US 20040139397 A1, US 20020065857 A1.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Colucci whose telephone number is (571)-270-1847. The examiner can normally be reached on 9:30 am - 6:00 pm, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571)-272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Art Unit: 2626

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